REMARKS

Newly added claims 14-54 are pending in this application. Claims 1-13 have been cancelled without prejudice. Applicant submits that newly added claims 14-54 present no new matter in this case. Specific support for newly added claims 14-26, 29-40, and 53-54 can be found, e.g., on pages 128-131 of the specification in the section titled **Protein of SEQ ID NO:4**. Support for added claim 27 can be found, e.g., on pages 90-93 of the specification in the section titled **Cell hosts**. Support for newly added claim 28 can be found, e.g., on pages 93-97 of the specification in the section titled **Transgenic Animals**. Support for newly added claims 41-42 can be found, e.g., *inter alia*, at page 37 of the specification in the section titled **Preparation of the polypeptides of the invention**. Support for newly added claims 43-48 can be found, e.g., on page 68 of the specification. Support for new claims 49-50 can be found, e.g., *inter alia*, at pages 326-331 of the specification. Support for new claims 51-52 can be found, e.g., *inter alia*, at page 340 of the specification in the section titled **Modifying GENSET Polypeptide Expression and/or Biological Activity**. Applicant believes that all pending claims are in full condition for allowance.

Also included with this Amendment is a Declaration by Applicants' representative indicating that the clone recited in claim 28 has been deposited at the American Tissue Culture Collection (ATCC), 10801 University Boulevard, Manassas, VA 20110-2209, United States under the terms of the Budapest Treaty, and further indicating that all restrictions imposed by the depositor on the availability to the public of the deposited microorganism will be irrevocably removed upon granting of a patent.

Attached hereto is a clean version of the changes made to the claims by the current amendment. Since all originally filed claims were cancelled, and claims 14-54 were added, the attached page is captioned "**CLEAN VERSION WITH CURRENTLY PENDING CLAIMS.**"

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Please charge any additional fees, or credit overpayment to Deposit Account No. 50-1181.

Respectfully submitted,

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CLEAN VERSION WITH CURRENTLY PENDING CLAIMS

IN THE CLAIMS:

14. An isolated SCPhx polynucleotide, wherein said polynucleotide encodes the polypeptide consisting of amino acids –26 to 267 of SEQ ID NO:4 or a polypeptide fragment thereof.

15. The polynucleotide of claim 14, wherein said polypeptide fragment consists of amino acids 1 to 267 of SEQ ID NO:4

16. The polynucleotide of claim 14, wherein said polypeptide fragment comprises amino acids 1 to 267 of SEQ ID NO:4

17. The polynucleotide of claim 14, wherein said polypeptide fragment spans amino acid L245 of SEQ ID NO:4.

18. The polynucleotide of claim 14, wherein said polypeptide fragment spans amino acids V118 and L245 of SEQ ID NO:4.

19. The polynucleotide of claim 14, wherein said polypeptide fragment comprises amino acids 237 to 267 of SEQ ID NO:4.

20. The polynucleotide of claim 14, wherein said polypeptide fragment has biological activity.

21. The polynucleotide of claim 20, wherein said biological activity is carboxypeptidase activity.

22. The polynucleotide of claim 20, wherein said biological activity is inhibition of carboxypeptidase activity.

23. The polynucleotide of claim 14, wherein said polynucleotide consists of nucleotides 39 to 920 of SEQ ID NO:3, or is a fragment thereof.

24. The complement of a polynucleotide, wherein said polynucleotide consists of nucleotides 825 to 1057 of SEQ ID NO:3, or a fragment of said complement.

25. A composition comprising the polynucleotide of claim 14 and a physiologically acceptable carrier.

26. An expression vector comprising the polynucleotide of claim 14, operably linked to a promoter.

27. A host cell recombinant for the polynucleotide of claim 14.

28. A non-human transgenic animal recombinant for the polynucleotide of claim 14.

29. An isolated polynucleotide comprising an open reading frame of the human cDNA of of deposited clone 1000848582_181-40-4-0-A11-F.

30. An SCPhx polypeptide encoded by the polynucleotide of claim 29.

31. An SCPhx polypeptide consisting of amino acids –26 to 267 of SEQ ID NO:4, or a polypeptide fragment thereof.

32. The polypeptide fragment of claim 31, wherein said polypeptide fragment consists of amino acids 1 to 267 of SEQ ID NO:4.

33. The polypeptide fragment of claim 31, wherein said polypeptide fragment comprises amino acids 1 to 267 of SEQ ID NO:4.

34. The polypeptide fragment of claim 31, wherein said polypeptide fragment spans amino acid L245 of SEQ ID NO:4.

35. The polypeptide fragment of claim 31, wherein said polypeptide fragment spans amino acids V118 and L245 of SEQ ID NO:4.

36. The polypeptide fragment of claim 31, wherein said polypeptide fragment comprises amino acids 237 to 267 of SEQ ID NO:4.

37. The polypeptide fragment of claim 31, wherein said polypeptide fragment has biological activity.

38. The polypeptide fragment of claim 37, wherein said biological activity is carboxypeptidase activity.

39. The polypeptide fragment of claim 37, wherein said biological activity is inhibition of carboxypeptidase activity.

40. A composition comprising the polypeptide of claim 31 and a physiologically acceptable carrier.

41. A method of making an SCPhx polypeptide, said method comprising:
    a) providing a population of cells comprising a polynucleotide encoding the SCPhx polypeptide of claim 31, operably linked to a promoter;
    b) culturing said population of cells under conditions conducive to the production of said polypeptide within said cells; and
    c) purifying said polypeptide from said population of cells.

42. The method of claim 41, wherein said polynucleotide consists of nucleotides 39 to 920, or is a fragment thereof.

43. An antibody that specifically binds to the polypeptide of claim 31.

44. The antibody of claim 43, wherein the specific binding of said antibody to said polypeptide depends on the presence of one or more of amino acids 237 to 267 of SEQ ID NO:4 within said polypeptide.

45. The antibody of claim 43, wherein said specific binding depends on the presence of amino acid L245 of SEQ ID NO:4 within said polypeptide.

46. The antibody of claim 43, wherein said antibody neutralizes carboxypeptidase activity.

47. A method of binding the polypeptide of claim 31 to the antibody of claim 43, comprising contacting said antibody with said polypeptide under conditions in which said antibody can specifically bind to said polypeptide.

48. A method of detecting a SCPhx gene product in a biological sample comprising the steps of:

a) obtaining said biological sample from a mammal;

b) contacting said biological sample with the antibody of claim 43; and

c) detecting the presence or absence of binding of said antibody to a protein within said sample;

wherein a detection of said binding indicates that SCPhx gene product is expressed in said biological sample.

49. A method of determining whether SCPhx gene is expressed in a biological sample, comprising the steps of:

a) obtaining said biological sample from a mammal;

b) contacting said biological sample with the polynucleotide of claim 24; and

c) detecting the presence or absence of hybridization between said polynucleotide and an RNA species within said sample;

wherein a detection of said hybridization indicates that SCPhx gene is expressed in said biological sample.

50. The method of claim 49, wherein said polynucleotide is a primer, and wherein said hybridization is detected by detecting the presence of an amplification product comprising the sequence of said primer.

51. A method of identifying a candidate modulator of an SCPhx polypeptide or polypeptide fragment, said method comprising:
    a) contacting the polypeptide or polypeptide fragment of claim 31 with a test compound; and
    b) determining whether said compound specifically binds to said polypeptide or polypeptide fragment;

wherein a detection that said compound specifically binds to said polypeptide or polypeptide fragment indicates that said compound is a candidate modulator of said SCPhx polypeptide or polypeptide fragment.

52. A method for the production of a composition, comprising:
    a) identifying a candidate modulator of an SCPhx polypeptide or polypeptide fragment using the method of claim 51; and
    b) combining said modulator with a physiologically acceptable carrier.

53. A method of using an SCPhx polypeptide fragment of claim 38 for the biosynthesis of a recombinant heterologous polypeptide, said method comprising:
    a) engineering said recombinant heterologous polypeptide to have a protective but inactivating C-terminal amino acid;
    b) expressing said engineered recombinant heterologous polypeptide;
    c) contacting said expressed engineered recombinant heterologous polypeptide with said SCPhx polypeptide fragment; and
    d) removing of said inactivating C-terminal amino acid on said heterologous polypeptide by said SCPhx polypeptide fragment.

54. A method of using an SCPhx polypeptide fragment of claim 38 to determine whether the C-terminal amino acid of a test polypeptide is required for the function of said test polypeptide, said method comprising:

a) contacting said test polypeptide with said SCPhx polypeptide fragment;

b) removing of said C-terminal amino acid by said SCPhx polypeptide fragment; and

c) determining that said C-terminal amino acid is required for said function if its removal reduces said function of said test polypeptide.